

Appl. No. 10/757,813
Att. Docket No. 7294C
Amdt. dated May 8, 2006
Reply to Office Action of Feb. 6, 2006
Customer No. 27752

AMENDMENTS TO THE SPECIFICATION

Please amend the specification as follows:

Please replace the paragraph beginning at page 1, lines 10 - 12, with the following amended paragraph:

This application is a continuation of ~~depending application~~ U.S. Serial No. 09/172,405, filed October 14, 1998 U.S. Patent No. 6,703,537 which issued on March 9, 2004, which claimed the benefit of U.S. Provisional Application 60/066,777, filed November 14, 1997.

Please replace the paragraph beginning at page 2 line 28 and ending on page 3, line 12, with the following amended paragraph:

In order to better manage viscous fluid bodily wastes, the present invention provides an absorbent article having a ~~first waist region, a second waist region opposed to the first waist region and a crotch region disposed between the first waist region and the second waist region. The absorbent article comprises a liquid pervious topsheet, a liquid impervious backsheet joined to at least a portion of~~ with the topsheet, an absorbent core disposed between at least a portion of the topsheet and the backsheet, and a waste management element disposed in at least a portion of the crotch region. The waste management element includes an acceptance element and having an effective open area of at least about 30% and an Acceptance Under Pressure value of greater than about 0.70 grams of a viscous fluid bodily waste per square inch of the acceptance element per millijoule of energy input. The waste management element further includes a fecal storage element. The acceptance element is disposed adjacent to a body surface of the absorbent core. The acceptance element comprises one or more apertures each having an effective aperture size of between about 0.2 square mm to about 25 square mm. The fecal storage element is disposed between at least a portion of the acceptance element and the backsheet absorbent core and is separate from the absorbent core. The storage element has a compressive resistance of at least about 70%, and a Storage Under Pressure value of greater than about 0.70 grams of the viscous fluid bodily waste per square inch of the storage element. The effective open area ensures that viscous fluid bodily wastes are quickly and efficiently imbibed by the article. Further, the improved compressive resistance may reduce the likelihood that normal wearing forces will release the waste from the storage element once the waste is imbibed by the article. Accordingly, the absorbent article of the present invention may reduce the likelihood of harm to the

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~~wearer's skin and/or the inconvenience to the caregiver normally associated with bowel movements, and especially runny feces.~~

Please add the following new paragraph on page 3, beginning on line 13.

In another embodiment, a disposable absorbent article comprises a liquid pervious topsheet, a liquid impervious backsheet joined to the topsheet, and an absorbent core disposed between at least a portion of the liquid pervious topsheet and the liquid impervious backsheet. The disposable absorbent article further comprises an acceptance element disposed adjacent to a body surface of the absorbent core. The acceptance element also has an effective open area of at least about 30%. The disposable absorbent article further comprises a fecal storage element disposed between at least a portion of the acceptance element and the absorbent core. Additionally, the fecal storage element has a compressive resistance of at least about 70%.

Please replace the paragraph beginning at page 4, line 9, with the following amended paragraph.

Figure 8 is a plan view of an alternative embodiment of the present invention having a portion cut-away to more clearly show the features of the present invention.

Please replace the paragraph beginning at page 7, line 19 and ending on page 8, line 3, with the following amended paragraph:

The backsheet 26 is generally that portion of the diaper 20 positioned adjacent the garment facing surface of the absorbent core 28 which prevents the exudates absorbed and contained therein from soiling articles which may contact the diaper 20, such as bedsheets and undergarments. In preferred embodiments, the backsheet 26 is impervious to liquids (e.g., urine) and comprises a thin plastic film such as a thermoplastic film having a thickness of about 0.012 mm (0.5 mils) to about 0.051 mm (2.0 mils). Suitable backsheet films include those manufactured by Tredegar Industries Inc. of Terre Haute, IN and sold under the trade name X15306, X10962 and X10964 CPC2 FILM. Other suitable backsheet materials may include breathable materials which permit vapors to escape from the diaper 20 while still preventing exudates from passing through the backsheet 26. Exemplary breathable materials may include materials such as woven webs, nonwoven webs, composite materials such as film-coated nonwoven webs, and microporous films such as manufactured by Mitsui Toatsu Co., of Japan under the designation ESPOIR NOTM and by Tredegar Corp. of Richmond, VA under the designation EXAIRE[®]. Suitable breathable composite materials comprising polymer

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blends are available from Clopay Corporation, Cincinnati, OH under the name HYTREL™ blend P18-3097. Such breathable composite materials are described in greater detail in PCT Application No. WO 95/16746, published on June 22, 1995 in the name of E. I. DuPont and copending U.S. Patent Application Serial No. 08/744,487, filed on November 6, 1996 in the name of Curro. Other breathable backsheets including nonwoven webs and apertured formed films are described in U.S. Pat. No. 5,571,096 issued to Dobrin et al. on November 5, 1996. Each of these references is hereby incorporated by reference herein.

Please replace the paragraph beginning at page 15, line 34 – page 16, line 16, with the following amended paragraph:

As used herein, the term "accept" or "acceptance" refers to the penetration of a structure by materials deposited thereon. Specifically, the term ~~accept~~ "accept" refers to the penetration of a structure by a fluid when subjected to the conditions set forth in the Acceptance Under Pressure Test, described in the Test Methods Section. Penetration is defined by the passage of materials through the surface of the structure upon which the material was deposited. Penetration of nonuniform structures can be defined as the passage of a material through a plane defining the surface upon which the material was deposited. Acceptance Under Pressure, or "acceptance" is measured as the amount of material that penetrates the surface of the structure per unit area per unit work done. "Work" is an energy term referring to the application of force through a distance. Thus, structures or elements that more readily accept viscous fluid bodily wastes require less energy to be expended per unit mass of the viscous fluid bodily waste accepted by the structure. An alternative performance parameter in describing the penetration of a structure by VFBW is "receptivity". As used herein, the term "receptivity" refers to the penetration of a structure by a fluid per unit area per unit of power when subjected to the conditions set forth in the Receptivity Under Pressure test, described in the Test Methods section. Receptivity Under Pressure, or "receptivity" is measured as the amount of material that penetrates the surface of the structure per unit area per unit of power. "Power" is a term referring to amount of work done as a function of time (i.e., the rate at which work is done).

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Please replace the paragraph beginning at page 27, lines 22-34, with the following amended paragraph:

An alternate embodiment of a storage element 152 includes a macro-particulate structure 170 comprising a multiplicity of discrete particles 172, nonlimiting examples of which are shown as Figures 5 and 6. The macro particles 172 preferably have a ~~nominal~~ size ~~of~~ preferably between about 1.0 mm and about 25.4 mm, and more preferably between about 2 mm and about 16 mm. However, particles as small as 0.5 mm and smaller, and particles larger than about 25.4 mm are contemplated. Particles having a ~~nominal~~ size of about 1.0 mm or greater are those which are generally retained on the surface of a U.S. Standard No. 18 mesh sieve screen. Particles having a ~~nominal~~ size of less than about 25.4 mm are those which generally pass through a U.S. Standard 25.4 mm sieve screen. Particles having a ~~nominal~~ size of 16 mm or greater are those which are generally retained on the surface of a U.S. Standard No. 16 mm sieve screen. The ~~nominal~~ particle size is measured prior to incorporating the particles into a storage element 152 for testing or use. Particles having a ~~nominal~~ size of 8 mm or greater are those which are generally retained on the surface of a U.S. Standard 8 mm sieve screen.

Please replace the paragraph beginning at page 28, line 31 and ending at page 29, line 2, with the following amended paragraph:

The macro-particulate structure 170 preferably includes a continuous interstitial void space 174 that is defined by the space between the particles 172. By varying the size and/or shape of the particles 172, the interstitial void space 174 can be controlled. The particles may be of any known shape, including spheres, oblate spheroids, rectangular and polygonal solids, and the like. Table III shows the void fractions of particles having particular alternative shapes and ~~nominal~~ sizes. Other suitable shapes and void fractions are described in Perry's Chemical Engineering Handbook, 6th ed., McGraw-Hill, 1984, at p. 18-20.

Please replace the TABLE V beginning at page 34, lines 1-5, with the following amended TABLE V:

TABLE V

Immobilization Under Compressed Inversion Using a Standard Acceptance Element

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Storage Element	Storage Under Pressure (g/in ²)	Immobilization Under Compressed Inversion (%)
Acquisition Layer from Pampers® Premium Size 5 Diaper available from Procter & Gamble, Cinti., OH	0.45	91
Loop landing element of Comparative Example 5 without apertured vacuum-formed film topsheet	0.52	71
Large-cell formed film of Comparative Example 3 without hydroentangled apertured nonwoven web topsheet	0.70	66
Scrubber particles of Example 3 without woven netting topsheet	1.14	70
Mixture of scrubber particles and foam strips of Example 5 without woven netting topsheet	1.80	81
Layered assembly of scrubber particles and foam strips of Example 6 without woven netting topsheet	1.89	78

Please amend the paragraph beginning at page 38, line 19, and ending at page 39, line 2, with the following amended paragraph:

Viscous fluid bodily waste analog, Analog A, is a fecal material analog made by mixing 10 grams of CARBOPOL® 941 available from the B.F. Goodrich Corporation of Brecksville, OH, or an equivalent acrylic polymer in 900 milliliters of distilled water. The CARBOPOL® 941 and distilled water are weighed and measured separately. A 3-bladed marine-type propeller having a 2 inch diameter paddle, (available from VWR Scientific Products Corp. of Cincinnati, Ohio, Catalog # BR4553-64, affixed to a 3/8" stirring shaft BR4553-52), is used to stir the distilled water. The propeller speed should be constant at 450 rpm during mixing. The mixer should form a vortex without splashing. The CARBOPOL® is slowly sieved into the water so that it is drawn into the vortex and mixed without forming white clumps, or "fish eyes". The mixture is stirred until all of the CARBOPOL® has been added, and then for a period of 2 minutes thereafter. The sides of the bowl containing the mixture should be scraped and the bowl

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should be rotated as needed to achieve a homogeneous mixture. (The mixture will likely be slightly cloudy with air bubbles). One hundred grams of a 1.0 N volumetric NaOH solution, available from J. T. Baker Co., Phillipsburg, NJ, is then slowly measured into the mixture and the mixture is stirred until homogeneous. The mixture should become thick and clear. The mixture should be stirred for 2 minutes after the addition of the alkali solution. The neutralized mixture should be allowed to equilibrate for at least 12 hours and should be used for the Acceptance Under Pressure test within 96 hours thereafter. Before the CARBOPOL® mixture is used, it should be stirred in the container at low speed (about 50 rpm) for about 1 minute to ensure the mixture is homogeneous.

Please delete the paragraph beginning at page 43, line 35 – page 44, line 2.

Please add the following new paragraph beginning at page 44, lines 1 - 3:

$$\text{Immobilization Under Compressed Inversion} = \frac{\text{Retention Under Compressed Inversion (g)}}{\text{Net Quantity of Analog B (g) imbibed during loading step}} \times 100\%$$

Please delete the paragraph beginning at page 44, line 40 – page 45, line 1.

Please add the following new paragraph beginning at page 45, lines 1 - 2:

$$\text{Porosity} = \frac{1 - \text{Bulk density (g/cc)}}{\text{Intrinsic Density (g/cc)}}$$

Please replace the paragraph beginning at page 45, lines 15-18, with the following amended paragraph:

Resiliency is the ratio of the caliper of the structure measured at 0.07 psi after the entire compression cycle is complete (i.e., after the structure has been subjected to increasing pressures from 0.07 psi through 1 psi as described above) and divided by the initial caliper at 0.07 psi before the compression loading cycle.

Please replace the paragraph beginning at page 45, lines 34-38, with the following amended paragraph:

A four inch by four inch (4 in. x 4 in.) sample cut from a Size 1 PAMPERS Pampers® Premium diaper, available from the The Procter & Gamble Co., Cincinnati, Ohio. The sample comprises all the layers of the product and is taken from the region containing the rearmost four inches of the absorbent core. The nonwoven topsheet is separated

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from the underlying layers for weighing prior to testing as described above. All of the layers are included in the actual test.

Please replace the paragraph beginning at page 46, lines 1-8, with the following amended paragraph:

A four inch by four inch (4 in. x 4 in.) sample cut from a Size 1 ~~PAMPERS~~ Pampers® Premium diaper, available from ~~the~~ The Procter & Gamble Co., Cincinnati, Ohio. The sample comprises all the layers of the product and is taken from the crotch region area containing the absorbent core. Eight millimeter diameter holes are punched though the structure of a diaper 20B, spaced 13 millimeters on center in staggered rows (see Figure 7). The topsheet is not removed from the structure prior to punching the holes. An apertured vacuum-formed film available as X-3265 from Tredegar Corporation of Terre Haute, Indiana is placed over this structure as a topsheet for testing.

Please replace the paragraph beginning at page 47, lines 1-7, with the following amended paragraph:

A four inch by four inch sample cut from a Size 1 ~~PAMPERS~~ Pampers® Premium diaper, available from ~~the~~ The Procter & Gamble Co., Cincinnati, Ohio. The sample comprises all the layers of the product and is taken from the crotch region area containing the absorbent core. Eight millimeter diameter holes are punched though the structure of the diaper 20B, spaced 13 millimeters on center in staggered rows (see Figure 7). The topsheet is not removed from the structure prior to punching the holes. The woven netting described in Example 1, available as a Tub Toy Bag from Dollar Tree Dist., of Norfolk, VA, is placed over the structure as a topsheet for testing.

Please replace the paragraph beginning at page 48, lines 10-21, with the following amended paragraph:

36.35 grams (about 127 count) of 6 millimeter diameter soda-lime #3000 glass balls, available from VWR Scientific Products Corporation of Cincinnati, Ohio as Catalog #26396-621, are mixed with 0.23 grams of strips of foam absorbent material described in Example 4, each strip having length and width dimensions of about 4.5 millimeters. A four inch by four inch (4 in. x 4 in.) section of Stay Put Rug Pad, available from Homemaker, 295 Fifth Street, New York, NY 10016 is modified by placing a 3 inch by 3 inch (3 in. x 3 in.) , 6.3 millimeter high boundary, made from 25.4 millimeter wide 3M SCOTCH Masking Tape onto the pad in order to stabilize the glass balls for

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testing. This is in turn placed over the blotter material 149. The glass ball and foam absorbent material cube mixture are distributed within the 9 square inch area bound by the masking tape border such that a single layer of the glass beads are made. The woven netting described in Example 1, available as a Tub Toy Bag from Dollar Tree Dist., of Norfolk, VA, is placed over the mixture to form the structure to be tested.

Please see a replacement (or new) abstract on the attached separate sheet